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IS 8444 (1977): Fumigant Strips for Treatment of Honey-Bees  
[FAD 3: Apiary Industry]



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*Indian Standard*  
SPECIFICATION FOR  
FUMIGANT STRIPS FOR  
TREATMENT OF HONEY-BEES

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# Indian Standard

## SPECIFICATION FOR FUMIGANT STRIPS FOR TREATMENT OF HONEY-BEES

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# *Indian Standard*

## SPECIFICATION FOR FUMIGANT STRIPS FOR TREATMENT OF HONEY-BEES

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 29 April 1977, after the draft finalized by the Apiary Industry Sectional Committee had been approved by the Agricultural and Food Products Division Council.

**0.2** Fumigant strips are recommended for smoke generation for treatment of honey-bees against tracheal mites (*Acarapis woodi*, Rennie). The strips are coated with a non-systemic acaricide, namely, chlorobenzilate which is safe to honey-bees. This standard is expected to help apiarists in procuring the strips of desired quality and lead to the import substitution of the product.

**0.3** The bee-colony is treated by burning the strip at one end and allowing to smoulder in the hive with the entrance closed after the flying has ceased.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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### 1. SCOPE

**1.1** This standard prescribes requirements for fumigant strips for use against acarine disease of honey-bees (*Apis cerana indica*).

### 2. TERMINOLOGY

**2.0** For the purpose of this standard, the following definitions shall apply.

**2.1 Fumigant**— Chemicals which when volatilized are toxic to target organisms.

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\*Rules for rounding off numerical values (*revised*).

**2.2 Acarine Disease** — Disease of honey-bees (*Apis carana indica*) caused by a microscopic mite (*Acarapis woodi* Rennie). It infects the thoracic trachea (breathing tubes) of adult bees.

### 3. MATERIAL AND CHEMICALS

**3.1 Blotting Paper** — conforming to IS: 1396-1960\*.

**3.2 Potassium Nitrate** — 5 percent solution.

**3.3 Chlorobenzilate** — ethyl 4,4'-dichlorobenzilate. Prepare 15 percent solution in benzene.

### 4. PREPARATION

**4.1** Soak the blotting paper in 5 percent potassium nitrate solution and allow it to dry in shade. Soak the dried paper once in 15 percent solution of chlorobenzilate and allow it to dry.

**4.2** Cut out the strips of dimensions  $11 \times 4$  cm which contains the appropriate dose.

### 5. REQUIREMENTS

**5.1** The strips shall be completely dry before packing.

**5.2** The strips shall be evenly soaked with the fumigant.

**5.3** Each fumigant strip shall contain 8 to 10 mg of chlorobenzilate per  $\text{cm}^2$  as tested by the method given in Appendix A.

### 6. PACKING AND MARKING

**6.1** The strips shall be suitably packed in cardboard cartons to guard against ingestion of moisture or other damage in handling.

**6.1.1** The supplier shall furnish the information sheet on the procedure for use of the strips and precautions in their handling.

**6.2** Each carton shall be marked with the following information:

- a) Name of the manufacturer, and
- b) Batch or code number.

**6.2.1** The carton may also be marked with the ISI Certification Mark.

**NOTE** — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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\*Specification for blotting paper.



## 7. SAMPLING

**7.1** The method of drawing representative samples of the product and the criteria for conformity shall be as agreed to between the purchaser and the supplier.

## APPENDIX A

( Clause 5.3 )

### METHOD OF DETERMINATION OF QUANTITY OF CHLOROBENZILATE ON STRIPS

#### A-1. REAGENT

**A-1.1 Benzene** — analytical reagent grade.

#### A-2. PROCEDURE

**A-2.1** Select a clean fumigant strip and measure its area accurately. Take 10 ml of warm benzene in a dish and dip the strip in it. Allow the strip to remain in benzene for 10 to 15 minutes. Remove the strip, filter the solvent through filter paper and collect the filtrate in a weighed dish. Again keep the strip in 10 ml warm benzene, remove it after few minutes, filter the solvent through the same filter paper and collect the filtrate in the same weighed dish. Repeat this procedure once more. Rinse the filter paper twice with 5 ml benzene each time and collect the washings in the same weighed dish. Evaporate benzene in the weighed dish and weigh it to get constant mass.

#### A-3. CALCULATION

**A-3.1** Mass of chlorobenzilate, in  $\text{mg}/\text{cm}^2 = \frac{C - D}{A} \times 1000$

where

$C$  = mass in g of the dish and residue;

$D$  = mass in g of empty, clean and dry dish; and

$A$  = area in  $\text{cm}^2$  of fumigant strip.

# INDIAN STANDARDS

## ON

### APIARY INDUSTRY

IS:

- 1504-1974 Beeswax ( *second revision* )
- 1515-1969 Beehives ( *first revision* )
- 1735-1960 Hive stands
- 1736-1960 Honey extractor, *tangential* type
- 2072-1976 Comb foundation sheets ( *first revision* )
- 3891-1974 Layout for honey processing plant ( *first revision* )
- 3894-1966 Comb foundation mill
- 4941-1974 Extracted honey ( *first revision* )
- 5426-1969 Travelling bees box
- 5427-1969 Honey extractor, *radial* type
- 6695-1972 Code for conservation and maintenance of honey bees
- 7459-1974 Wasp trap
- 7849 ( Part I )-1975 Layout for a honey house: Part I Large scale honey handling units